

Similar to other studies conducted by these research workers from Canada, the pH of round bale silage did not drop as quickly or as low as the chopped silage made from the same forage. Lactic acid content was initially higher in the tube silage but by day 10 it was similar in both types of silage. Clostridia counts were higher in the wrapped bales than in the tube silages at the later stages of fermentation. High clostridia counts usually indicate poor silage quality.

In summary, there are several advantages to making large round bale silage in addition to large, round bale hay. They include:

- a. *Less concern about weather.*
- b. *Getting first crop off field earlier.*
- c. *Greater leaf retention.*
- d. *Increasing use of baler.*
- e. *Using less energy to make silage.*

However, there are some cautions to keep in mind when making round bale silage. Dry matter level of the forage should be in the range of 30-40% in order to reduce the probability of contamination by listeria organisms. Bales should be tightly covered with plastic immediately after baling--plastic covering the ensiled round bales should be checked periodically to monitor for damage such as from rodents.

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Research workers in Scotland reported that the amount of spoiled silage was higher in bales (21.5% on D.M. basis) than wrapped silage (10.2%). These workers concluded that big bale silage is prone to contamination by listeria organisms. Some data from one of their studies is shown in Table 2.

Table 2. Level of *L. monocytogenes* contamination in spoiled and unspoiled, wrapped, and bagged big bale silage.

<u>Number of bales:</u>	<u>Bagged Silage</u>	<u>Wrapped Silage</u>
Examined	31	27
Contaminated	21 (68%)	19 (70%)
Contaminated after removal of spoiled material	7 (23%)	7 (26%)

data from Fenlon et al, 1989 Grass & Forage Science 44:97.

There was no significant difference in the level of *L. monocytogenes* between big bale silage made in individual bags or wrapped. The degree of listeria contamination could be significantly reduced by the removal of obviously spoiled material prior to feeding. Sheep are particularly susceptible to listeriosis.

Canadian researchers studied the composition of wilted alfalfa made either as large round wrapped bales or chopped and packed in long plastic tubes. The forage was harvested at two dry matter levels (27.4% and 40.4% d.m.). The resulting silage was then analyzed at 0, 1, 3, 10, and 60 days after storage. Some of their results are reported in Table 3.

Table 3. Characteristics of haylage ensiled in wrapped bales or as bagged silage.

	<u>Wrapped bales</u>		<u>Chopped in Tube</u>	
	<u>27% DM</u>	<u>40% DM</u>	<u>27%</u>	<u>40%</u>
pH				
Days of Storage				
0	6.2	6.3	5.8	6.0
1	5.8	6.0	4.7	5.0
3	6.0	6.0	4.7	4.7
10	5.8	5.9	4.8	4.7
60	5.4	5.7	4.7	4.6
Lactic acid (gm/kg DM)				
Days of Storage				
0	2.0	0.3	1.6	1.3
1	8.4	3.9	33.4	22.1
3	11.0	4.8	24.8	15.8
10	21.4	9.3	23.4	16.6
60	30.9	19.7	9.6	34.3
Clostridia				
Days of Storage				
0	3.16	2.62	3.46	2.69
1	2.91	3.38	3.05	3.10
3	3.69	3.20	2.53	2.50
10	4.52	5.51	3.54	3.63
60	5.76	5.32	3.56	4.24

data from Nicholson et al 1992 Can. J. Anim. Sci 72:347.